

What is claimed is:

1. A security modeling system comprising:
a network configuration module having network configuration data; and
a simulator coupled to the network configuration module for simulating and
analyzing networks based on the network configuration, wherein the simulator includes a
network vulnerabilities database.
2. The system of claim 1, wherein the network vulnerabilities database includes
network vulnerability, attack and exploitation data.
3. The system of claim 2, wherein the network configuration data and the network
vulnerability, attack and exploitation data are stored in database tables and the data is
processable by a computer.
4. The system of claim 1, wherein the network configuration module comprises
network configuration data output by a network configuration discovery tool.
5. The system of claim 1, wherein the simulator includes a graphical user interface.
6. The system of claim 2, wherein the simulator includes a means for receiving the
network vulnerability, attack and exploitation data.
7. The system of claim 1, wherein the simulator includes a defender and an attacker
user interface.
8. The system of claim 1, wherein the security modeling system is portable.
9. A computer game comprising:
a network configuration module having network configuration data;
a simulator coupled to the network configuration module for simulating and

analyzing networks based on the network configuration, wherein the simulator includes a network vulnerabilities database, and wherein the simulator includes a graphical user interface for playing the game.

- 5 10. A security modeling system comprising:
 a network configuration module having network configuration data;
 a simulator coupled to the network configuration module for simulating and
analyzing networks based on the network configuration, wherein the simulator includes a
network vulnerabilities database; and
10 a mission objectives module coupled to the simulator, wherein the mission
objectives module includes critical resource information.

11. The system of claim 10, wherein the network vulnerabilities database includes
network vulnerability, attack and exploitation data.

12. The system of claim 11, wherein the network configuration data and the network
vulnerability, attack and exploitation data is stored in database tables and the data is
processable by a computer.

13. The system of claim 10, wherein the simulator includes a graphical user interface.

14. The system of claim 10, wherein the critical resource information includes goals,
expectations and constraints for simulating the network.

15. The system of claim 10, wherein the simulator includes a means for receiving the
network vulnerability, attack and exploitation data.

16. The system of claim 10, wherein the security modeling system is portable.

17. The system of claim 10, wherein the simulator includes a defender and an attacker

user interface.

18. A method of analyzing a computer network using a security modeling system, wherein the security modeling system includes a database of network vulnerability information, the method comprising:

providing a network configuration of a computer network;
simulating the network based on the network configuration; and
determining vulnerabilities of the simulated network using the vulnerability information stored in the database.

19. The method of claim 18, wherein providing a network configuration includes receiving a configuration as the output of a network discovery tool.

20. The method of claim 18, wherein providing a network configuration includes receiving a data file which includes a configuration of the computer network.

21. The method of claim 18, wherein simulating the network includes:
receiving mission objectives;
storing the objectives; and
simulating the network based on the network configuration and mission objectives.

22. The method of claim 21, wherein determining vulnerabilities includes modifying the simulation using a graphical user interface.

23. The method of claim 22, wherein modifying the simulation includes dynamically interacting with an attacker.

24. The method of claim 22, wherein modifying the simulation includes dynamically interacting in real time with the security modeling system.

25. The method of claim 23, wherein modifying the simulation includes dynamically interacting in real time with the security modeling system.

26. The method of claim 21, wherein determining vulnerabilities includes computing security results, wherein the security results include a security score.

27. The method of claim 21, wherein determining vulnerabilities of the simulated network includes updating the vulnerabilities database when vulnerabilities are detected.

28. A method of opposing network attackers comprising:
receiving a network configuration, wherein the network configuration comprises computer hardware and software component information;
receiving mission objectives;
receiving commands from a network attacker;
simulating the network based on the commands received from the network attacker, wherein simulating the network includes determining results as a function of the network configuration, mission objectives and stored vulnerability data for the described computer hardware and software components; and
responding to the network attacker, wherein responding to the attacker includes imposing barriers, providing response messages and protecting the network.

29. The method of claim 28, wherein simulating the network further includes receiving commands from a defender and determining results based on the defender commands.

30. The method of claim 28, wherein receiving configuration includes receiving critical resource information, wherein the critical resource information includes goals, expectation and constraints for simulating the network.

31. The method of claim 28, and further includes modifying the simulation using a graphical user interface.

32. The method of claim 31, wherein determining vulnerabilities includes computing security results which include a security score.

33. The method of claim 31, wherein receiving commands includes receiving attack actions which include commands that simulate service functionality, commands that change services or nodes, and commands that exploit vulnerabilities.

34. A security modeling system for simulating objective networks comprising:
a simulator having a plurality of databases, wherein the plurality of databases include mission objectives tables, vulnerability tables, and network configuration tables, wherein the network configuration tables include network configuration data; and
a graphical user interface which operates with the simulator to allow input and output to clients.

35. The system of claim 34, wherein the mission objectives tables include mission tables, mission files tables and mission services tables.

36. The system of claim 34, wherein the vulnerability tables include service tables.

37. The system of claim 34, wherein the network configuration tables include configuration tables, defense tables, filter tables, node tables, routing tables and password tables.